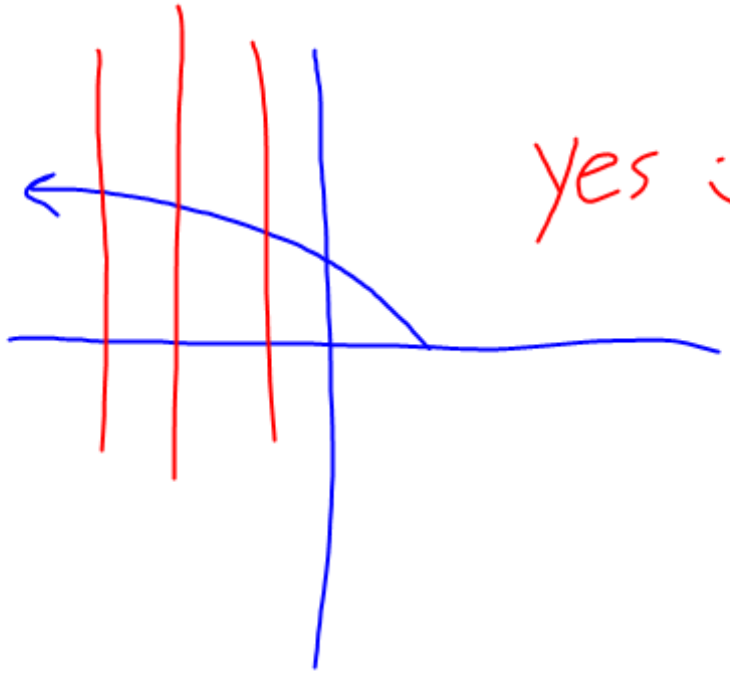
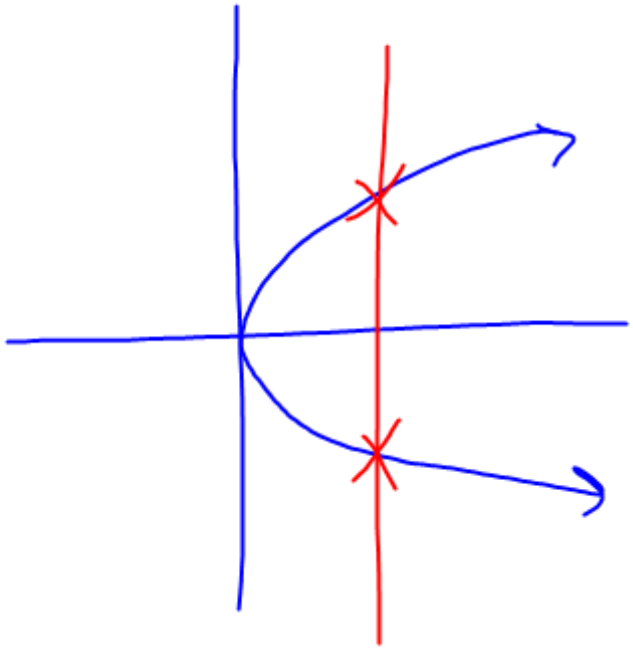
p. 82 #1-6(2), 7-16(2), 17-20(2), 24, 25, 33,
38, 39, 42, 43 and range, 45, 50, 51, 57-60(1),
61-64(1), 65 or 66, 67

Function - the independent variable has only 1 dependent variable

- every x has only 1 y-value



yes ☺



NO!

Domain - set of possible x-values

→ can't $\sqrt{\text{neg}}$

→ can't ÷ by zero

→ context

$f(x) = 3x^2 + 5$ Domain: $(-\infty, \infty)$ All $\mathbb{R}$

$f(x) = \frac{3}{x+5}$ D: All $\mathbb{R}$, $x \neq -5$

$f(x) = \sqrt{x+7}$ D: $x \geq -7$

$f(x) = \sqrt{25 - x^2}$

$25 - x^2 = 0$

$+x^2 \quad +x^2$

$25 = x^2$

$x = \pm 5$

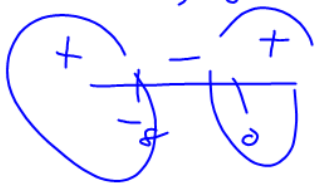
$-5 \leq x \leq 5$

$f(x) = \sqrt{x^2 + 8x}$

$x^2 + 8x = 0$

$x(x+8)$

$x = 0, -8$



Point-Slope form

$y = m(x - x_1) + y_1$

m: slope; (x_1, y_1): pt.

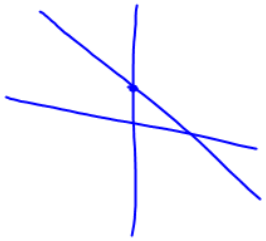
ex. #20

$(1,6)\ (4,2)$ $\quad m = \frac{6-2}{1-4} = \frac{4}{-3} \Rightarrow y = -\frac{4}{3}(x-1) + 6$

or $y = -\frac{4}{3}(x-4) + 2$

to find y-int, $x = 0$ so $y = -\frac{4}{3}(0-1) + 6$

$y = -\frac{4}{3}x + 7\frac{1}{3}$



Find eq. of line parallel to $y = -\frac{4}{3}x + 7\frac{1}{3}$ through the pt $(5,3)$

$y = m(x - x_1) + y_1$

$y = -\frac{4}{3}(x-5) + 3$